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XXXII. *Observations and Experiments on different Extracts of Hemlock : By Michael Morris, M. D. F. R. S.*

Read May 24,  
1764.

**D**R. Wade, an eminent physician at Lisbon, having lately communicated to the London Medical Society, a number of cases, in which the extract of Hemlock prepared at Coimbra in Portugal, had been given with extraordinary success, and having sent me at the same time specimens of the successful extract, and also of the extracts of Hemlock prepared at Lisbon and by Dr. Storck's Apothecary at Vienna, which two last-mentioned extracts he had prescribed for the space of three years, in various disorders, to little or no effect; I thought an experimental inquiry into the component parts of these extracts and that used in London might be attended with some useful or curious consequences; more especially as this medicine was near losing its credit intirely, from its little success *here* in those disorders in which it had been most strongly recommended by Dr. Storck. I think it not unnecessary to premise farther, that the extract prepared at Coimbra is not so moist as the other extracts, and that it has been given for a considerable time at the dose of a drachm and a half twice a day without producing the least disagreeable symptom.

## E X P E R I M E N T I.

24 grains of the extract of Hemlock prepared at Coimbra, digested with an ounce of highly rectified spirit of wine for 36 hours in a warm room, gave a brownish yellow tincture; the clear liquor being poured off, a fresh quantity of spirit was added as before, and exposed to digestion for the same space of time; the second tincture was considerably less coloured; this, added to the former tincture, was filtered, and exposed to the air in a warm room until the spirit was intirely evaporated; the dry residuum weighed five grains; on exposing it to the air it became softer, and even moist at the surface.

On pouring some water on the residuum now moist, it was soon tinged of a brownish yellow, which being poured off, and a fresh quantity added at different times, until an ounce and a half of water had been used, there remained some blackish matter not soluble in water, which when dry weighed one grain, did not attract the moisture of the air, melted and burned with a bright flame when exposed to the fire, was soluble in spirit of wine, and had every characteristic of a resin.

The tinged water, which had been separated from this resin and filtered, was evaporated slowly, until a brown dry matter remained weighing three grains, which in a few hours attracted the moisture of the air, and relented into a dark brown thick liquor, of a saline taste, and the smell peculiar to the extract of Hemlock. One drop of this liquor, diluted with a little water, destroyed the colour of ten times the quantity

quantity of syrop of violets, without giving it the least red tint; reducing it, on adding some drops of oleum tartari per deliquium, it suffered no remarkable change. Spirit of salt did not occasion any alteration in it. But with oil of vitriol there was a strong effervescence, without any sensible fume.

It appears from the above experiments, that the Coimbra extract of Hemlock contains one fifth soluble in spirit of wine,  $\frac{3}{5}$ ths of which consist of an oily essential salt, the remainder being a resin.

## EXPERIMENT II.

The extract of Hemlock from Vienna was softer than that from Coimbra; on breaking it, there appeared small whitish streaks on each surface. 24 grains of it, treated as in the former experiments with spirit of wine, gave a fine deep green tincture, which on evaporation gave a residuum of a dark green towards the edges of the cup and a dark brown towards the middle; the whole residuum when dry weighed two grains and  $\frac{1}{4}$ ; on leaving it exposed to the air, the brown matter attracted moisture from it and relented into a thick brown liquor; on adding water to it, as in the experiments on the Coimbra extract, the solution was of a light green colour; on evaporation it gave  $\frac{3}{4}$ ths of a grain of dark brown residuum, which ran per deliquium into a brown liquor, differing only in colour from that obtained by a similar process from the Coimbra extract. The undissolved resinous matter weighed  $\frac{1}{2}$  grain, was of a greenish colour, but in other respects like the resin of the Coimbra extract. It appears from the green  
tincture

tincture communicated both to water and rectified spirit by the Vienna extract, that the Hemlock had been gathered too soon, and before the plant was in vigour.

### E X P. III.

The spirituous tincture of the Lisbon extract was not so green, nor was the green so durable, as that of the Vienna extract: the phenomena, in consequence of the other experiments, did not differ materially from those of the Vienna extract.

### E X P. IV.

The spirituous tincture of the extract of Hemlock prepared at the Apothecary's-Hall, was like in colour to that of Coimbra, but the residuum did not differ considerably from that of Vienna and Lisbon. This extract has been used with some success at the Westminster-Hospital.

### E X P. V.

The spirituous tincture of the powdered leaves of Hemlock was like in colour to the last; the residuum differed materially from that of the former extracts only in its resin's being considerably more fluid.

These experiments shew that the extract of Hemlock prepared at Coimbra contains a far greater quantity of an essential oily salt and resin, than the other extracts. As the oils, salts and resins are the most active

tive parts of vegetables, may not the well-attested salutary effects of the Coimbra extract be owing to its greater quantity of these active principles, particularly if we consider the large dose it has been prescribed in? As these active oily salts and rezins are soluble in spirit of wine, we have the means of obtaining them from the extract of our own Hemlock in sufficient quantities for use, and without fatiguing the stomach with the nauseous inactive parts of the extract.

But as experience alone can shew whether the virtues of the Hemlock reside in the whole extract, or in the saponaceous parts soluble in spirit of wine; I shall content myself with proposing these few hints, until experiments shall enable me to lay the other consequences of these assays with proper weight before the Society.